

until next year, and a site for the new building can hardly be secured before the Act is got, so that if all goes smoothly, a year or two must elapse before the united societies, to be known as "The Society of Arts and the London Institute," can receive their friends under the altered conditions, and in their new premises.

The idea of thus combining into a single body two scientific institutions, each of considerable importance, is a bold and novel one, and it is to be hoped that it may not fail of success. It would be a pity if any narrow views or selfish considerations hindered the carrying out of a very interesting experiment. Each of the two corporations can supply much of what the other lacks. The constitution of the London Institution is unfortunate. It consists of a body of shareholders, the descendants or heirs of the original founders, many of whom are naturally out of sympathy with the objects of the institution, and no means exist of introducing fresh blood or attracting to its membership the men who would most fitly carry on its proper work. Very early in its career the kindred Royal Institution altered its constitution, disendowed its proprietors, and adopted a more popular and democratic organisation. Its unflinching success ever since has proved the wisdom of the change. But the Finsbury institution possesses considerable property. It has a magnificent library. Its list of members is still a showy one. It only requires the infusion of fresh blood; it wants new life and vigour. The Society of Arts is a very popular and vigorous body, full of life and energy. It does much really useful public work. Its examinations, for instance, attract more candidates than that of any other private body in the kingdom. Its Cantor lectures (which are always freely open to London students) are a valuable educational agency. But it is hampered by want of larger offices, its library is far from being a credit to it, and it might well devote more attention and more funds to purposes of research and investigation.

A new institution such as should be formed ought to possess the good points of both its parents, while avoiding the weaknesses of either. It might also form a nucleus round which might gather many of the smaller societies, now often inadequately housed. In a suitable building accommodation might well be provided for many other societies, scientific, literary, and artistic, which are now scattered about in various quarters of London.

Even a larger scheme is conceivable. Burlington House can find room for but a small proportion of the scientific bodies of London. Why should not this proposed amalgamation lead to the erection of a second Burlington House, of which those of our larger and richer societies who are not satisfied with their premises should erect each their own part, independent certainly of one another, and yet combined under a common roof?

#### NOTES.

LORD KELVIN, who has been out of health for some time, underwent a serious operation on March 29. He passed a restless night on March 30, but has much improved since then, and appears to be making satisfactory progress toward recovery. The King and the Prince and Princess of Wales have made special inquiries as to his condition; and there have been numerous callers.

SIR WILLIAM RAMSAY, K.C.B., F.R.S., has been elected a member of the Athenæum Club under the provisions of the rule which empowers the annual election of nine persons "of distinguished eminence in science, literature, the arts, or for public services."

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It is reported by the Exchange Telegraph Company that a violent earthquake occurred at Lahore on Tuesday, April 4, causing serious loss of life and great damage to public buildings and other property.

A GRANT of 30,000*l.* has been authorised by the Carnegie Institution, *Science* states, for the solar observatory on Mt. Wilson. It is expected that the first equipment will cost about twice this sum.

We learn with sincere regret that Prof. Pietro Tacchini, formerly director for many years of the astronomical observatory of the Collegio Romano, and of the Central Office for Meteorology and Geodynamics at Rome, died on March 24 at sixty-seven years of age.

THE *Times* states that the Chartley herd of white cattle has just been purchased by Mr. J. R. B. Masefield, of Cheadle, Staffordshire, on behalf of the Duke of Bedford, who has come forward and saved the herd from leaving the country or falling into the hands of the taxidermist.

AN agricultural education and forestry exhibition will be held in connection with the show of the Royal Agricultural Society at Park Royal on June 27-30. Any offers of exhibits, or inquiries, should be addressed to the secretary of the society, at 13 Hanover Square, London, W.

THE Easter excursion of the Geologists' Association will be to mid-Lincolnshire. The party will leave London for Grantham on Thursday, April 20, and after visiting several places of geological interest will leave Lincoln for London on Wednesday, April 26. The excursion secretary is Mr. W. P. D. Stebbing, 8 Playfair Mansions, Queen's Club Gardens, London, W.

A GREAT historical pageant is in active preparation at Sherborne, Dorsetshire, to commemorate the 1200th anniversary of the founding of the town, bishopric, and school by St. Ealdhelm, A.D. 705. The pageant, which will be presented in the ruins of Sherborne Castle on June 12-15, will take the form of a folk-play written by Mr. Louis N. Parker and dealing with the chief historical events of the town.

THE death of Dr. L. Bleekrode, of the Hague, is announced in the *Chemical News*. Dr. Bleekrode's work was principally connected with electrical matters, his first paper, in 1867, being on the influence of heat on electro-motive force. In 1870 he wrote a paper on a curious property of gun-cotton; other papers dealt with electrical conductivity and electrolysis in chemical compounds, observations on the microphone, &c.

WE regret to see the announcement of the death, on March 25, of the eminent German metallurgist, Prof. Bruno Kerl, at the age of eighty-one. He was professor of metallurgy at the Clausthal School of Mines, and subsequently at the Berlin School of Mines, and was the author of a number of metallurgical works. His first book, on the smelting processes of the Upper Hartz, was published in 1852. His important treatise on metallurgy was translated into English by Sir W. Crookes and E. Röhrig in 1868. His books on assaying were also translated.

THE importance of the application of mathematics to engineering problems has frequently been insisted upon in these columns. Another instance of the close connection between pure and applied science is afforded by an investigation of some disregarded points in the stability of masonry dams, by Prof. Karl Pearson and Mr. L. W. Atcherley, referred to by Sir William Garstin in connection with the scheme for raising the Nile dam, in a recent

report to the Egyptian Council of Ministers. It appears that the theory of stresses upon masonry dams requires important modifications, which will have to be taken into consideration in all future designs for such works. We understand that much experimental work on the subject is at present in progress, and that results of great interest to hydraulic engineers may be expected.

THE anniversary dinner of the Chemical Society was held at the Whitehall Rooms, Hôtel Métropole, on March 29, when the president, Prof. W. A. Tilden, was in the chair, and many leading representatives of the physical sciences were present. Sir William Church, in giving the toast of "Prosperity to the Chemical Society," spoke of the advances which chemical science has made, and declared that the advantages which have accrued to the United Kingdom, as a result of the work of chemists, cannot be over-estimated. Prof. Meldola submitted the toast of "Scientific Institutions," which was responded to by Prof. J. Larmor and Dr. R. T. Glazebrook. Sir William Ramsay proposed the toast of "The Guests," and in replying Mr. Haldane said that as science never stood still, but progressed continually, so the Government of this country must, if the nation is to hold its own, make an increasing use of science in all departments of the State service. He expressed the belief that in the course of the next few years the position of science in the Government of the country will be much more prominent, and that scientific methods will become much more general. Prof. Perry also spoke.

A MEETING of the Institution of Naval Architects will be held at the Society of Arts, John Street, Adelphi, on April 12-14. Lord Glasgow, president of the institution, who will occupy the chair, will deliver his address on April 12; and Mr. W. E. Smith, C.B., Colonel N. Soliani, and Mr. Herbert Rowell will submit papers for discussion. On April 13 Prof. J. H. Biles will read a paper on the strength of ships, with special reference to experiments and calculations made upon His Majesty's ship *Wolf*, and other papers will be submitted by Mr. F. H. Alexander, Mr. J. Bruhn, Mr. R. E. Froude, Mr. C. E. Stromeyer, Mr. A. W. Johns, and Herr S. Popper. Among the papers to be read on April 14 is one on the Admiralty course of study for the training of naval architects by Mr. E. L. Attwood, and another on submarine signalling by means of sound by Mr. J. B. Millet, of Boston, U.S.A.

THE Royal medals of the Royal Geographical Society for this year have been awarded to Sir Martin Conway (founder's medal) for his explorations of various mountain regions of the world, and his work among the islands of Spitsbergen; and to Captain C. H. D. Ryder, R.E. (patron's medal), for the important and extensive work which he accomplished while acting as principal survey officer on the recent Tibet Mission. The Victoria research medal, for distinguished service to the cause of geographical research, as distinguished from exploration, has been awarded to Mr. J. G. Bartholomew. The Murchison grant goes to Mr. William Wallace, C.M.G., Deputy High Commissioner of the Northern Nigerian Protectorate. Colonel F. R. Maunsell, R.A., has been awarded the Gill memorial for his explorations during many years' residence in Asia Minor; Mr. F. J. Lewis the Cuthbert Peek grant for contributions to the knowledge of botanical distribution by his researches into the geographical distribution of vegetation in the north of England; and Captain Philip Maud, R.E., the Back grant for survey work in 1903 along the southern border of Abyssinia.

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THE concluding issue of the *Proceedings* of the Philadelphia Academy for 1904 contains the reports of the secretaries and curators for that year, from which it appears that the society continues to be in a flourishing condition, both as regards its publications and its museum.

IN an article published in *Nature* for March, Mr. J. Rekstad shows the value of photography to illustrate the secular variation in glacier terminations, the respective differences between two glaciers in August, 1899, and September, 1903, being admirably exhibited. In both instances, it may be remarked, there has been very decided shrinkage in the length of the glacier. The value of photographs of this nature as a basis of comparison in the years to come will be very great.

WE have been favoured with a copy of No. 17 of the *Boletín* of the Institute of Mining Engineers of Peru, which contains an account of certain annelid remains and ammonites in the Salto del Fraile and Morro Solar districts by Mr. C. I. Lisson. Both formations appear to be of Neocomian age, the higher beds of Salto del Fraile being remarkable for the number of borings of annelids of the genus *Tigillites* they contain, while the lower Morro Solar stratum is noteworthy for its ammonites of the group *Sonneratia*.

IN the *Report and Transactions* of the East Kent Scientific and Natural History Society for the past year, the secretary takes occasion to direct attention to the general apathy towards matters scientific prevailing in that portion of the county he represents. Owing to this cause, the season's excursions were practically a failure, and there may be some connection between this apathy and the fact that it has hitherto been found impracticable properly to arrange and display the natural history collections in the Royal Museum.

THE *Zoologist* for March opens with an article by Mr. Lydekker on the small Asiatic mountain antelopes known as gorals. The main object of the article was to describe the Burmese species; but in the course of his investigation the author was led to believe in the existence of two Himalayan representatives of this group, one of which he names *Urotragus bedfordi*, on account of the type specimen having lived in the park at Woburn. In the penultimate line on p. 84 we notice that the word "eastern" should be "western." The second article, by Mr. John Gurney, is devoted to Norfolk bird-life in 1904, and it is interesting to note that in the spring of that year the author had the good fortune to see two avocets and seven spoonbills on Breydon Broad.

FROM the fisheries branch of the Department of Agriculture and Technical Instruction for Ireland we have received a copy of No. 4 of *Scientific Investigations*, containing an account by Messrs. Holt and Tattersall of schizopod crustaceans from the north-east Atlantic slope, and a note on one genus of the same group by Dr. Calman. In proposing several new generic types, the authors of the first paper suggest that these may prove of only temporary value, and add the remark that these, if not forgotten, "will, at least, cease to be harmful whenever the fashion of reviving deservedly forgotten names has run its due course." Dr. Calman proposes the name *Nematobranchion* to replace his *Nematodactylus* of 1896, which he regards as preoccupied by Richardson's *Nemadactylus*. Evidently neither of the three authors are in sympathy with the rules for nomenclature in zoology drawn up by the Paris committee.

DR. T. H. MONTGOMERY, in the *Proceedings* of the American Philosophical Society for the last quarter of 1904, runs a tilt at the generally accepted view as to the morphological superiority of the male sex in animals. Among invertebrates, he urges, it is always the male which is of inferior size and development, while as regards vertebrates, although the males have in many cases secured superiority in the matter of bodily size and secondary sexual characters, yet, as regards the generative organs (notably the suppression in certain instances of one ovary), the advantage, from the point of view of specialisation and development, is largely on the side of the female. While admitting that different morphologists might estimate the value of these characters differently, the author is inclined to give the greatest morphological value to the higher development of the reproductive organs.

In discussing in the same issue the origin of the markings of organisms, the late Prof. Packard arrived at the conclusion that these are dependent on the physical rather than on the biological environment. The alleged instances of "Müllerian" mimicry he explained, for example, by convergence due to the action of similar physical and climatic causes, since he regarded the attacks of birds as a negligible factor. Again, the frequent instances of colour and pattern resemblance between different animals he attributed to pigmentation caused by exposure to sunlight and shade, due to the repetition of fundamental colours. "To claim that Müllerian mimicry," he added, "is due to the attacks of birds, is to overlook the fact of the existence of stripes, bars, and spots on the wings of palaeozoic insects which flourished before the appearance of birds, and even of modern types of lizards."

THE *Report* on the third outbreak of plague at Sydney in 1903 by Dr. Ashburton Thompson is interesting as showing how an epizootic of plague among the rats preceded the two cases of human plague. From July 15, 1902, to April 30, 1903, 31,075 rats were caught, of which 17,160 were examined and found to be free from plague. On May 12 a rat was found on certain premises which on examination proved to be infected with plague, and up to August 15 14,671 rats and mice were caught, of which 111 rats and 50 mice were ascertained to be infected with plague. From then until December, 1903, 13,389 rats and mice were captured of which none was infected. The two human cases occurred on June 20 and July 4, *i.e.* during the period when the epizootic existed among the rodents.

THE February number of *Indian Public Health* (i., No. 7) contains several papers of interest, notably one criticising the plague policy of the Indian Government, in which it is concluded that the only way to grapple with the plague problem is the formation of a properly organised and equipped permanent public health service for the country.

In the course of a report on the characters and analyses of sweet potatoes cultivated in Jamaica, Mr. H. H. Cousins, writing in the *West Indian Bulletin* (vol. v., No. 3), records the fact that the process of cooking increases the sugar content of sweet potatoes very considerably. Further experiments are being undertaken to ascertain the exact chemical nature of the change. A comparison of tubers freshly dug with others that had been stored for some weeks indicated that during storage there is also a development of sugars at the expense of other substances in the tubers.

VARIOUS kinds of citrus fruits, including oranges, pome-  
loes, grapefruit, and more particularly lemons and limes,

are liable to suffer from the ravages of a parasitic fungus, *Colletotrichum gloeosporioides*, which attacks the leaves, causes spot or canker on the fruit, or brings about abscission of the inflorescence. The fungus has been reported from various orange-growing countries, and on account of its partiality for limes, planters in the West Indies will do well to consult the account by Mr. P. H. Rolfs which is published in the *Bulletin*, vol. iii., part ii., of the Department of Agriculture, Jamaica.

THE publication of pamphlets dealing with the cultivation, varieties, and market requirements of well known commercial plant products, as instituted by the director of the Royal Botanic Gardens, Ceylon, is a practical and important phase in the development of economic botany. In vol. ii., Nos. 23 and 25, of the *Circulars* of the gardens, Mr. H. Wright takes up the subjects of ground nuts and castor oil plants. The best quality of ground nuts, and these can be grown in Ceylon, are bought for eating, but the demand is limited; on the other hand, the requirement of the nuts for oil-crushing, although the price is less remunerative, is practically unlimited, and the cake furnishes an excellent cattle food. In the castor seed trade it does not appear that Ceylon will become a formidable rival to India.

THE Cerro de Pasco silver mines are the most remarkable in Peru, having been worked since the year 1630. At the present day operations are chiefly confined to the reworking of old slags and waste heaps. On March 21, 1902, a Government Commission was appointed to make a survey of these mines, and the report of the commission has now been published in the form of a *Boletín* issued by the Peruvian Corps of Mining Engineers. Illustrations and descriptions of the smelting works are given, and it is noted that the output in 1903 amounted to 7213 tons of matte containing 4071 tons of copper. It is curious that these ancient silver mines should develop as copper mines in depth.

A NOTE in *NATURE* for January 26 (p. 305) referred to Adelaide, in South Australia, and Coolgardie, Western Australia, as the places having the highest maximum temperatures recorded in the British Empire. Mr. W. E. Cooke, Government astronomer of Western Australia, writes to say that Marble Bar, in the north-west division of that State, is very much hotter than Coolgardie. The mean of the daily maximum temperatures for January, 1905, was 109°·8, and the highest reading 120°·5. He adds that at Jacobabad, in India, the average daily maximum temperature is 111°·6 in May, 112°·7 in June, and 107°·8 in July, and at Duem, in the Egyptian Soudan, the mean maximum for March, 1902, was 114°·4, and the absolute maximum 127°·4.

WE have received from Mr. J. van Breda de Haan a copy of a valuable series of meteorological observations made during the year 1901 at the State Botanical Gardens at Buitenzorg, Java. The observations are made with the view of explaining certain problems connected with vegetable physiology, and consequently special attention is given to air and underground temperature, humidity and sunshine, and more particularly to the intensity of rainfall showers. Observations and monthly means are given for several hours of each day, in addition to daily means.

THE *Quarterly Journal* of the Royal Meteorological Society for January last contains an interesting paper on the decrease of fog in London during recent years. The results are given for months and for seasons for each of



the thirty-three years 1871 to 1903, based upon the observations for London (Brixton) published in the daily weather report of the Meteorological Office. The mean annual number of foggy days is 55, of which 45 occurred in the winter half of the year. Dividing the thirty-three years into three equal periods, the result is, for the first period, a mean of 55, for the second 69, for the third only 41. Since the year 1888 a steady and uninterrupted decrease is shown in the mean annual number of fogs. Among the principal agencies which may have conduced to this desirable result must be mentioned the efforts of the Coal Smoke Abatement Society and the London County Council, also the use of incandescent gas light and electricity; but, as pointed out by Captain A. Carpenter and Mr. C. Harding, the increase of wind in recent winters is probably chiefly responsible for the decrease of fog. As we have remarked before, the geographical situation of London is, from a purely meteorological point of view, eminently favourable to the development of fog, and the only permanent improvement we can hope for is an abatement of its more injurious effects caused by the imperfect consumption of coal and gas.

WE have received a copy of part i. of the "Katalog der Bibliothek der Naturforschenden Gesellschaft in Danzig," published at Danzig in 1904. Although the list of books included is not completely representative, this publication, containing the sections mathematics and astronomy, may be found useful to those desiring to refer to the works of certain authors on these two subjects. The range of subjects is a wide one, and the books are entered under the names of the authors.

HAVING occasion recently to devise a short-focus spectrograph, Prof. Wood, of the Johns Hopkins University, found it necessary to make a study of the distribution of light (monochromatic) in the different orders of a typical grating. His method, a beautifully simple one, is described and illustrated in No. 2, vol. xxi., of the *Astro-physical Journal*. The result showed that, in the typical grating experimented with, half the reflected light was concentrated in one spectrum, and as the grating reflected about 76 per cent. of the total incident light, this means that about one-third of this total was found in the one spectrum, which was one of the two first orders. It was also found that the ruling makes little or no difference to the total reflecting power of the speculum. Two flint prisms of 60° would give about the same average dispersion as that produced, and, according to Pickering's table in Kayser's "Handbuch," they would transmit a little more than twice the light reflected, in the first order of the grating used.

THE *Psychological Bulletin*, ii., 2, contains reports of the proceedings of the thirteenth annual meeting of the American Psychological Association and of the fourth annual meeting of the American Philosophical Association, which were both held at Philadelphia on December 28-30. Abstracts of the papers are given. Invitations on behalf of Harvard University to hold the next annual meeting in Cambridge, Mass., to signalise the opening of the Emerson Hall of Philosophy were accepted by both associations, and it is proposed that the Western Philosophical Association and the Southern Society for Philosophy and Psychology shall also meet at the same time and place.

A COLOURED plate of a new species belonging to a new genus of Hydrachnidæ is given in the *Rendiconti* of the Lombardy Institution, xxxviii., 3, in illustration of a note by

Mr. R. Monti on the new "find." This water mite was obtained in cold springs on the right bank of the Anza, near Ceppomorelli, and has been named *Polyxo placophora*. The same writer in another number of the same journal discusses the horizontal migrations of lacustrine plankton, and finds in mountain lakes that, in addition to the known vertical movements, there are well-marked diurnal migrations of the small crustacea to different parts of the lake depending on sunshine and shade.

IN the March number of the *American Journal of Science* Mr. Charles S. Hastings utilises some observations of the power of accommodation of the eye for light of different wave-lengths to make a complete determination of the optical constants of the eye for all conditions of accommodation and for all colours. The results are given in two tables, by the use of which all problems connected with the purely optical properties of the schematic eye may be solved.

IN the course of an investigation of radio-active muds which is published by Prof. G. Vicentini in the *Atti* of the Royal Venetian Institute (vol. lxiv., ii., 535), the connection existing between the ionisation produced by the mud and the quantity of material used is experimentally ascertained. When the mud is spread uniformly over a definite area, the intensity of the radiation increases as the thickness of the layer is increased, but a direct proportionality does not exist between them. After a certain point, moreover, the radio-activity is not increased by adding fresh material. Mr. H. S. Allen, in a paper read before the Royal Philosophical Society of Glasgow on January 25, also deals with radio-active water and mud, the material in this case being derived from the springs of Bath and Buxton. An interesting point which is established incidentally is that the fluorescence excited in a sensitive plate by the radium rays plays only a very minor part in the production by these rays of a photographic effect.

AN interesting investigation of the secondary radiation produced when the  $\beta$  and  $\gamma$  rays of radium impinge on metallic plates is published by Prof. J. A. McClelland in the *Transactions* of the Royal Dublin Society (vol. viii., No. 14). It is shown that the secondary rays are not produced merely at the surface of the plate struck by the primary rays, but that they come from all parts of a layer of considerable depth. Apparently the less penetrating  $\beta$  rays are more efficient in producing a secondary radiation than the  $\gamma$  or highly penetrating rays. The nature of the secondary radiation depends largely on the character of the metal employed; the greater the atomic weight of the latter the greater is the amount of the secondary radiation produced by it. Of all the substances experimented with, lead gives rise to the greatest effect, both as regards the quantity of the secondary radiation and its penetrating power. The secondary radiation consists, apparently entirely, of a species of  $\beta$  rays, that is, of negatively charged particles capable of deflection in a magnetic field. Perhaps the most important feature of the paper lies in its directing attention to the necessity of considering secondary radiations in all measurements of the absorptive power of substances with regard to the rays produced by radio-active bodies.

WE have received a copy of a memorandum on the construction and verification of a new copy of the imperial standard yard, by Mr. H. J. Chaney, superintendent of the Standards Department of the Board of Trade. Since the original standard yard of bronze was made some sixty

years ago, it has been found that bars which are constructed of copper alloys do not retain their original length with that degree of accuracy now demanded for scientific purposes. The new copy (I.P.) is made of an alloy containing 89.81 per cent. of platinum and 10.10 per cent. of iridium, such an alloy being little affected by changes of temperature and not at all by oxidation; as the alloy admits of a high specular polish, the fine lines marking the extremities of the yard can be traced directly on the bar without the intervention of gold plugs or pins as in the older type. Instead of using the old solid 1-inch section, for the purpose of lightness the so-called "Tresca" section has been adopted. The memorandum gives full details of the verification of the length and a description of the apparatus used, including the thermometers by which temperature was measured and a new microscopic "comparator" similar to that used at Paris by the Comité international des Poids et Mesures. This instrument has been purchased by the Board of Trade and mounted in a special chamber at Old Palace Yard, Westminster.

VESSELS of fused quartz can now be obtained commercially, and on account of the remarkable properties of this substance, a wide field of research at high temperatures would appear to be opened up by their use. In high temperature gas thermometry, for example, where glass is excluded on account of its comparatively low melting point, and platinum on account of its permeability to hydrogen, fused quartz promised to be an ideal envelope. Unfortunately, Villard has found that fused quartz is also permeable to hydrogen at high temperatures, well below its melting point, and Jacqueroed and Perrot have proved that helium resembles hydrogen in this respect. In the current number of the *Comptes rendus* (March 27) M. Berthelot shows that the use of quartz vessels is still further limited, as both oxygen and nitrogen can penetrate into hermetically sealed quartz bulbs at 1300° C. Thus carbon, heated in sealed vacuum quartz tubes for half an hour at 1300° C., gave a mixture of nitrogen and carbon monoxide on cooling the tube and extracting the gases. Experiments were made on other substances, and all the facts pointed to the conclusion that at a high temperature fused silica behaves towards gases like an animal membrane, susceptible of endosmosis and exosmosis, the phenomenon depending partly on the thickness of the wall. It is clear, therefore, that before this substance can be used with confidence in high temperature work, a further study will have to be made of its defects in this direction.

THE *Comptes rendus* for March 27 contain an interesting paper on the cryoscopic behaviour of hydrocyanic acid, by M. Lespieau. According to the views of Nernst and Thomson on the relation between the dielectric capacity and the power of electrolytic dissociation, the fact that the dielectric constant of prussic acid is higher than that of water should give the acid a higher dissociating power. M. Lespieau has accordingly carried out a series of experiments on the lowering of the freezing point of this substance by the addition of alcohol, chloroform, benzene, water, trichloroacetic acid, sulphuric acid, potassium iodide and nitrate, and has found that for the first six substances the cryoscopic constant is between 19 and 20, whilst for the two latter it is approximately double. Hence the two acids, which are strongly dissociated in water, are not sensibly dissociated in prussic acid solutions of the same strength, and this is in accord with the experiments of Kahlenberg, who found that these solutions were bad con-

ductors, these facts being in contradiction with Nernst's theory. On the other hand, the solutions of potassium salts in hydrocyanic acid were found by Kahlenberg to be better conductors than aqueous solutions of the same concentration, and this agrees with the cryoscopic results, according to which the two salts are nearly completely dissociated into their ions in prussic acid.

MR. W. WOODS SMYTH will give a lecture on "The Bible in the Light of Modern Science" at Stafford Rooms, Tichborne Street, Edgware Road, to-morrow, April 7, at 5 p.m.

MESSRS. WATTS AND CO. will shortly publish, for the Rationalist Press Association, Prof. Haeckel's "Evolution of Man," being a translation of the recently issued fifth edition of "Anthropogenie."

### OUR ASTRONOMICAL COLUMN.

COMET 1905 a (GIACOBINI).—A second telegram from the Kiel Centralstelle announces that comet 1905 a was observed by Prof. Aitken at Lick on March 27. The position at March 27d. 7h. 57.1m. (Lick M.T.) was R.A. = 5h. 48m. 55s., dec. = +12° 35' 43".

Apparently, then, the northern declination is increasing, and not decreasing as previously stated. An error in the key by which the code telegrams are translated substituted declination for N.P.D., so that the daily movement in declination should be read as *plus* 1° 15'.

The following elements have been computed by Dr. E. Strömberg from observations made on March 26, 28, and 30, and are given in *Circular* No. 76 of the Kiel Centralstelle, together with a bi-daily ephemeris extending from March 30 to April 23:—

#### Elements.

$$\begin{aligned} T &= 1905 \text{ April } 3^{\text{rd}} 20^{\text{h}} 9^{\text{m}} 8^{\text{s}} \text{ (M.T. Berlin).} \\ \omega &= 357^{\circ} 9' 49'' \\ \Omega &= 156^{\circ} 7' 94'' \\ i &= 41^{\circ} 37' 48'' \end{aligned} \quad \left. \begin{array}{l} \\ \\ \end{array} \right\} 1905^{\circ} 0$$

$$\log q = 0.05232$$

#### Ephemeris 12h. (M.T. Berlin).

1905	$\alpha$			$\delta$	$\log \Delta$	Bright- ness
	h.	m.	s.	°		
April 7 ...	6	31	16 ...	+25 26.9 ...	9.8661 ...	0.98
9 ...	6	40	5 ...	+27 39.9 ...		
11 ...	6	49	13 ...	+29 48.1 ...	9.8745 ...	0.93
13 ...	6	58	39 ...	+31 50.9 ...		
15 ...	7	8	22 ...	+33 47.9 ...	9.8855 ...	0.87

Brightness on March 26 = 1.0.

PHOTOGRAPHY OF THE CORONA WITHOUT A TOTAL ECLIPSE.—According to a note communicated to the French Academy of Sciences, and in the opinion of M. J. Janssen, M. A. Hansky has succeeded in photographing the corona of the uneclipsed sun. The photographs were taken with a 12-inch telescope in the exceptionally transparent atmosphere which obtains at the observatory situated on the summit of Mont Blanc.

After a number of preliminary experiments on the selective absorption of screens dyed with various aniline colours, M. Hansky obtained a combination which absorbed all radiations more refrangible than 660  $\mu$ , and, as the red radiations of the corona are very intense and do not suffer absorption or dispersion in passing through the terrestrial atmosphere, he used this screen in obtaining twelve negatives. The individual screens were prepared by soaking a fixed undeveloped Lumière film in each of the suitable dyes, and, between each exposure, they were re-arranged *inter se* so that no false effect due to any particular disposition of the "grain" might affect the resulting picture. The direct photospheric and chromospheric rays were prevented from reaching the plate by